

## **Measures to decrease fossil fuel dependency for heat and electricity generation Sweden as a case**

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The Swedish fossil fuel dependency for electricity and heat production has decreased significantly since the beginning of the 1970s. Strategies for oil substitution in the 1970's made the electricity production almost fossil free, while strong measures for efficiency improvements in buildings reduced oil demand for heating. In 1991 a carbon tax was introduced. This has been the most important factor for the fuel switch from fossil fuels to biomass that has been seen especially in the district heating systems. During recent years also the use of oil in individual heating systems has been reduced and substituted by biomass pellets and heat pumps.

The existence of efficient district heating systems has been a key factor for efficient and environmentally feasible utilisation of biomass and waste for energy purposes. For the future, the systems will also be strategic resources for an expansion of biomass-based CHP. Biomass and wind power are expected to be responsible for the foreseen expansion of renewable electricity driven by the electricity certificate system that was introduced in 2003. The use of fossil fuels in individual heating systems are expected to almost vanish in the future. In industry, which already today is to a very little degree dependent on fossil fuels, there seems to be some room for further fossil fuel substitution both within the forest industry and the manufacturing industry. The significant use of coal within the steel industry seems, however, difficult to substitute in the foreseen future.